

**National Park Service
U.S. Department of the Interior**



**Grand Canyon National Park
Arizona**

MULE OPERATIONS AND STOCK USE FINDING OF NO SIGNIFICANT IMPACT

High levels of use on three major Grand Canyon National Park trails, combined with insufficient trail maintenance funding, create a number of problems needing management action. Deteriorated trail conditions, conflicts between trail users, inadequate facilities and infrastructure, and upcoming stock-use concession contracts renewal present an opportunity to plan for stock-use management. Objectives are to 1) provide opportunities for park mule and stock use for as large a cross section of visitors as practicable; 2) establish appropriate levels and types of stock use (i.e. number of stock per day, group size) on park trails that will allow for improved maintenance and reduced resource impacts and costs associated with trail maintenance; 3) through improved maintenance and operations, reduce conflicts between stock users and hikers on park trails; and 4) identify optimal stock-facility locations, including associated infrastructure size and locations for improving health, safety, and overall visitor experience.

This Environmental Assessment (EA) evaluates a No Action Alternative (Alternative A) and four Action Alternatives to address the purpose and need for action. The Preferred Alternative is identified as Alternative B and is described below.

This document records 1) a Finding of No Significant Impact as required by the National Environmental Policy Act of 1969, and 2) a determination of no impairment as required by the NPS Organic Act of 1916.

PREFERRED ALTERNATIVE

Alternative B was designed to specifically address trail conditions, crowding at Supai Tunnel, and public and concessioner interest in continuing mule rides in the park similar to current levels. Primary elements include 1) limiting commercial stock use on Bright Angel Trail, 2) eliminating commercial use below Supai Tunnel on North Kaibab Trail, 3) setting a maximum number of mules at Supai Tunnel based on hitching rail location and size, and overall area layout, and 4) adding an above-rim ride on South Rim.

South Rim

Commercial Stock Use

Up to 10,000 commercial mule rides, including Inner Canyon and above-rim rides, will be offered each year (current average use is 8,315 rides).

Bright Angel Trail

Up to 10 rides per day plus up to 2 guides will be allowed to Phantom Ranch. Plateau Point day rides from South Rim will not be offered under this alternative.

South Kaibab Trail

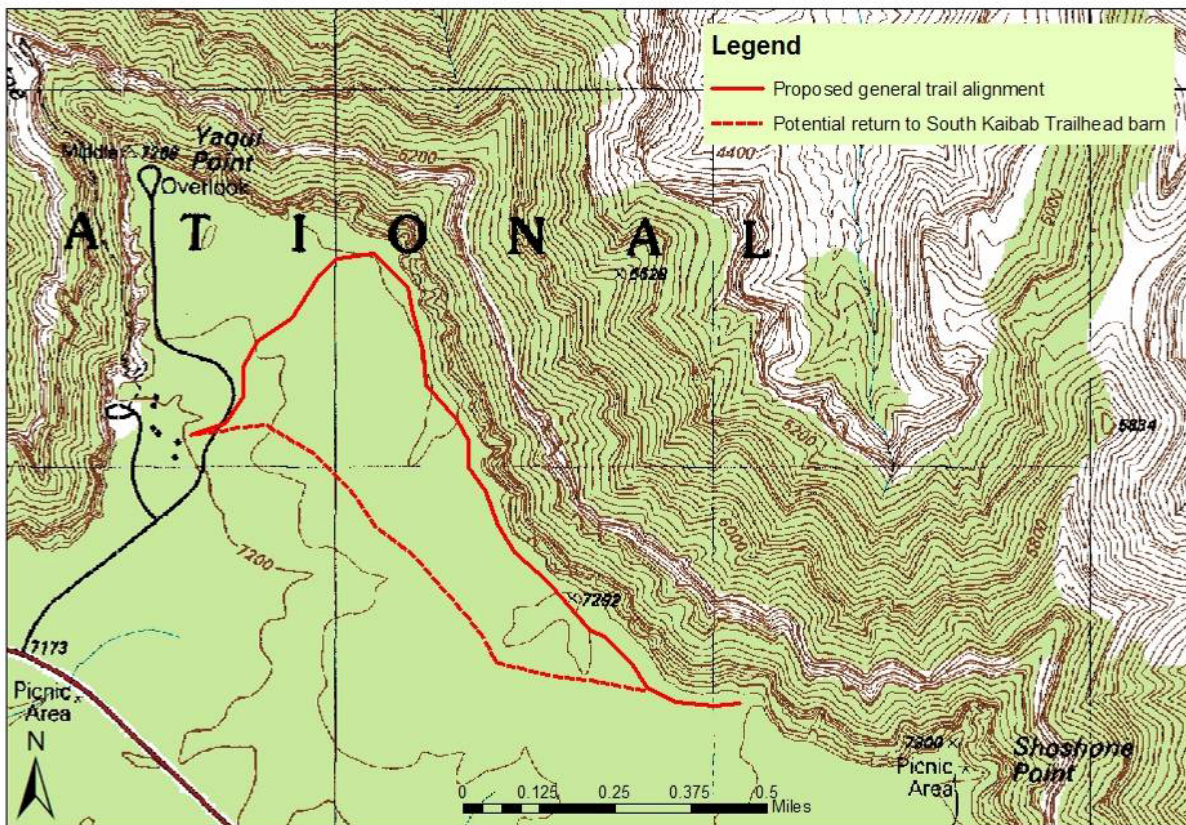
Stock use will be allowed up to 10 rides plus guides per day from Phantom Ranch. Additionally, up to 12 supply mules including guides will be allowed daily to supply Phantom Ranch.

Above-rim ride

An above-the-rim ride will be allowed at a level of 40 rider mules per day with a minimum of one guide for every 10 riders.

This ride will begin at South Kaibab Trailhead and parallel the road toward Yaki Point. The ride will meet the rim just east of Yaki Point, then continue east along the rim for approximately one mile and will return using the same route or loop back to South Kaibab Trailhead through the forest (see Map 1). Total length will be approximately three miles. The exact route will be developed to minimize resource impacts, by an interdisciplinary park staff team.

Map 1 Above rim mule ride general alignment



The trail developed for this ride will be four-to-six feet wide and unpaved. Much of the proposed alignment follows an existing rim social trail. The concessioner will maintain and clean mule waste from the trail as necessary. Signs regarding trail etiquette for hikers will be displayed near the trail to minimize any potential conflicts with users. Bicycles will not be allowed on this trail section. No other above rim commercial mule rides will occur on South Rim.

South Rim Commercial Stock Facilities

The current Grand Canyon Village mule barn will house a small number of concessioner stock, and the majority of concessioner stock operations will be moved to the South Kaibab Trailhead barn. Due to an increase in mules at the South Kaibab Trailhead location, improvements such as expansion of pens and barns, and addition of a restroom will be needed.

Private Stock Use

Overnight below-the-rim groups will be allowed up to 6 stock and 6 people.

Day-use group size will be allowed up to 12 stock and 12 people.

North Rim

Commercial Stock Use

Up to 8,000 commercial mule rides, including Inner Canyon and above-rim rides, will be offered each year (current average use is 7,072 rides).

North Kaibab Trail

Up to 48 rides per day will be allowed to Supai Tunnel with no more than 30 rides on the trail at one time, and no more than 280 rides per week. These numbers were changed slightly from the preferred alternative described in the EA. The North Kaibab Trail will be open for commercial stock to Supai Tunnel and not to Roaring Springs.

No widening or bypasses will be constructed on the North Kaibab Trail to address crowding at Cinch Up and at Supai Tunnel. The park and concessioner will work together to educate hikers regarding trail etiquette, specifically regarding mules on the trail.

Ken Patrick Trail

Up to 40 one-hour rides on the Ken Patrick Trail to the Uncle Jim Junction will be allowed daily, with no more than 20 rides on this section of trail at any one time.

Uncle Jim Trail

Up to 20 half-day rides to Uncle Jim Point will be allowed daily.

North Rim Stock Facilities

The hitching rail at Uncle Jim Point will remain in place, and a one-stall composting toilet will be installed to replace the existing toilet. Unit installation may require helicopter use. Cleaning and routine maintenance will occur on a weekly basis or as needed, and the site will be accessed by foot or stock. Emptying the unit will occur as needed and may be accomplished by helicopter or stock.

Private Stock Use

Overnight below-the-rim groups will be allowed up to 6 stock and 6 people. Day-use group size will be allowed up to 12 stock and 12 people.

Commercial Use at Tuweep and on Whitmore Trail

Up to six stock use groups will be allowed to occur at Tuweep each year. This use will be authorized under a commercial use authorization (CUA). Each group will be no more than 12 stock and 12 people, including guides, and will occur as day rides only. If sites were

available, groups may camp in the Tuweep Campground; stock will not be allowed overnight.

No additional commercial stock use will be allowed at Tuweep; however, if requests for more than six groups occur in the future, the park may consider these requests and may increase the number of groups using the adaptive management strategy described below.

No stock use will be allowed on the Whitmore Trail under the Action Alternatives. The trail is not currently maintained due to its remote location and non-existent use.

Monitoring

Stock use trails and facilities will be monitored to assess conditions and impacts to resources. Cost of trail work, amount of work completed, and amount of stock and hiker use will be tracked to determine impacts.

The Facility Management System Software (FMSS) program is currently used to track trail conditions over time, and calculate deferred maintenance. Condition assessments are completed annually, and evaluate overall trail condition and areas that may be impassable. Comprehensive condition assessments are completed every five years that assess trail structures, number of erosion control devices, number of liner rocks, amount of tread present, and condition of these trail components. This FMSS program may be expanded to address additional monitoring needs such as impacts to natural and cultural resources or visitor experience.

Other monitoring efforts may include trailhead registration for private stock users to help track amount of day use, particularly on Corridor Trails, visitor surveys, and others as developed.

A monitoring plan will be developed after completion of a decision document for this EA. Impact indicators may include soil loss on trails, amount of mule waste on trails, stock camp condition, and browsing of vegetation along trails, among others. Measurable standards will be developed as part of the monitoring plan. The NPS Trail Crew, and Science and Resource Management Division will evaluate trail and resource conditions, and inform further management actions as necessary (see Adaptive Management below).

Adaptive Management

Adaptive management can be described as a series of repeating incremental steps: collect information on existing trail conditions, analyze it, propose appropriate management actions, implement the actions, monitor the trail and resource conditions, evaluate trail and resource conditions against measurable standards developed in a monitoring plan and if needed – use additional management actions to ease the problem(s).

The adaptive management concept proposed for stock use, after implementation of the selected alternative, is a systematic approach intended to manage concerns such as deteriorated trail conditions, increased deferred maintenance costs, conflicts between trail users, and accidents/injuries of stock, stock users, and hikers.

Adaptive management for stock use will start with the lowest level action that may effectively resolve issues with trail conditions and visitor experience. The NPS will develop management objectives to evaluate the effectiveness of the selected alternative and guide future management actions. If needed, additional limits on stock use may be phased-in over

a number of years, as park staff monitors trail conditions, costs, and visitor experience to determine the best course of action to take next if the lowest level of action is unsuccessful. To address trail conditions, for example, the park may begin with low level actions such as trail rehabilitation including installation of water erosion control devices and construction of durable trail surfaces (e.g. rip rap) using standards currently being developed by the NPS, active removal of mule waste from the trails, and increased education of trail users.

If those interventions are not successful at improving trail conditions and reducing deferred maintenance costs and user conflicts, then the park may consider seasonal trail closures (similar to those described in Alternative E in the EA) or further limits on stock use.

The highest level actions (such as eliminating stock use on Corridor Trails) will be considered only if other types of actions have already been tried, evaluated and proven unsuccessful. Additional compliance will be completed as required for each phase of adaptive management.

Trail maintenance

The NPS will continue to maintain trails throughout the park, including those where stock use will occur. Methods and standards for trail maintenance are currently being prepared by NPS, both nationally and at the park level. These standards will be used in the adaptive management strategy described above.

Trail Closures

Trail and/or weather conditions including ice, wash outs, and collapsed retaining walls, can require closure of park trails to stock use. As needed, temporary trail closures may occur for the safety of stock and stock users.

Mule Waste Clean-up

Concession contracts will continue to include requirements for trails to be cleared of mule waste. NPS staff will ensure these measures are followed.

Educating Trail Users

Education and outreach will be enhanced to address user conflicts and safety concerns on stock use trails. Methods to educate users will include signage, internet, interpreters, and other methods as developed.

For example, signage and other outreach methods may be used on the North Kaibab Trail to alert hikers of mules stopping at Cinch Up. This area is of particular concern because stopping is necessary to ensure rider and mule safety; however, hikers often attempt to pass the mules at this location even though the trail is not wide enough.

Funding

The NPS will continue to seek funding for trail maintenance under all Alternatives. Additionally, the park will seek to use volunteers to assist with trail work on some stock use trails, such as the Arizona Trail on South and North Rim, and the Ken Patrick and Uncle Jim Trails.

Annual Limit on Rides

Each Action Alternative identifies an annual limit for commercial mule rides from and on both North and South Rim. This concept allows concessioners flexibility to accommodate more visitors during high visitation times up to daily limits proposed for each trail.

However, it does not allow for the maximum number of rides on all trails everyday; instead annual limits assume there will be days when the weather does not allow any rides, when visitation and ride demand is low, or trail conditions cause trail closures. The current-condition baseline for the average number of commercial mule rides annually from South Rim is 8,315 and 7,072 from North Rim.

Duffel Service and Drag Outs

The South Rim concessioner that operates mule rides and supplies Phantom Ranch also provides duffel and drag-out service to and from Phantom Ranch. These services will continue under all Action Alternatives. Duffel service will continue as current; the concessioner hauls duffels as space allows on supply mules going to and from Phantom Ranch. Drag-out, or drag-in, service allows visitors to take a one-way mule trip, generally from Phantom Ranch to South Rim or from South Rim to Phantom Ranch. When a drag-out is requested, the South Rim concessioner has a string of five mules available to transport up to five visitors. This service will continue at no more than 100 visitors per year, which is ten more than the maximum number of drag-outs that occurred in any year since 2002. If demand were to increase, park managers may use an adaptive management strategy to consider allowance of additional drag-outs which will include reevaluation of trail conditions and resource impacts to determine if additional mule traffic will have measurable impacts.

Stock Facilities

Most corrals, hitching rails, and other infrastructure associated with stock will remain in its current condition, being maintained and upgraded as necessary. Additional NEPA documentation may be required in the future if facility upgrades have environmental impact potential.

The Indian Garden corral, located in the Garden Creek floodplain, will be relocated when funding becomes available. Another corral may be constructed to accommodate NPS stock. Additional NEPA will be required depending on size and location of new corral. Site-specific analysis for this action is not included in this EA.

Private stock campsites at Phantom Ranch and Cottonwood Campground will be improved if funding becomes available and may include construction of pens and shade structures for stock.

Administrative Stock Use

NPS will limit administrative stock use as much as possible to lessen stock impacts to trails (i.e., erosion); however, some stock use will occur for trail and restroom maintenance and Indian Garden staff supply. Helicopters may also be used when needed to supply Indian Garden and for trail material transport, in accordance with GRCA aircraft regulations.

South Kaibab Trail will be used as the primary NPS stock route to supply Phantom Ranch, maintain restrooms along the trail, transport trail materials, and access other Inner Canyon locations such as Cottonwood Campground and Clear Creek.

MITIGATION MEASURES

The following mitigation measures have been developed to minimize the degree of adverse effects, and will be implemented during execution of the selected alternative, as needed. Many mitigation measures apply only to construction activities, and few proposed actions include construction (i.e. expansion of mule facilities at South Kaibab Trailhead, installation of composting toilet at Uncle Jim Point). The park's Project Manager will be responsible for implementation of these mitigation measures.

Contractor Orientation Contractors working in the park are given orientation concerning proper conduct. This orientation is provided both in writing and verbally at a preconstruction meeting. This policy will continue for the duration of this project. Orientation will include, but not be limited to:

- Wildlife will not be approached or fed
- Collecting any park resources, including plants, animals, and historic or prehistoric materials, is prohibited
- Contractor must have a safety policy and a vehicle fuel-spill and package policy

Soil Erosion To minimize soil erosion, the following mitigation measures will be implemented:

- Standard erosion control measures such as silt fences, sand bags, or equivalent control methods will be used to minimize any potential soil erosion, specifically during construction activities
- No disturbance outside of construction fencing will be allowed

Vegetation To minimize vegetation impacts, prevent exotic vegetation introduction, and minimize spread of noxious weeds, the following mitigation measures will be implemented:

- The park's Vegetation Program Manager will provide input on salvage potential and tree avoidance at project sites where necessary and will also spot-check work progress
- All construction equipment that will leave paved roads will be pressure-washed prior to entering the park and will be clean of any soil, plant matter, or other materials
- Staging area locations for construction equipment will be park-approved. If determined by the Vegetation Program Manager to be necessary, exotic vegetation will be treated prior to beginning of construction
- Pruning necessary for this project, specifically along trails, and for any future periodic maintenance, will adhere to the park's pruning guidelines with the goal of retaining health and integrity of trees and shrubs treated. Damage to trees or roots in or adjacent to project areas during construction will be avoided as much as possible, and proper root pruning practices must be used
- Any needed fill materials will be obtained from a park-approved source in adherence to park standard operating procedures. Topsoil from the project area will be retained whenever feasible
- Any revegetation efforts will use site-adapted native seed and/or plants
- Weed seed free feed will be used by all stock users as guided by the park policy
- Tree material removed during the project will be cut and chipped onsite
- Disturbed areas will be mulched, or gravel applied, as appropriate, to limit invasion and spread of invasive, nonnative plants
- Aspen fiber erosion control products, not straw products will be used
- If erosion control fencing is used, soil will be piled in front of the fence to avoid creating bare soil and potential for invasive plant species encroachment
- Native soil retention: In areas with little to no invasive plants and with high quality native soil, duff, and litter, soils will be scraped and piled onsite for re-use as topsoil once

construction is complete. The soil will be stored in windrows no wider than three feet and no higher than three feet to retain healthy biological activity and native seed sources.

Special Status Species To protect any unknown or undiscovered threatened, endangered, or special status species, the construction contract will include provisions for discovery of such. These provisions will require cessation of construction activities until park staff evaluated the impact, and will allow contract modification for any measures determined necessary to protect the discovery. Although no special status species or habitat occur within the project area, mitigation measures are included here as further precautionary measures should these species occur in the future.

California Condor

- If a condor lands within 300 feet of the construction site, construction will cease until it leaves on its own, or permitted personnel employ techniques that result in the individual condor leaving the area
- If a condor lands within 300 feet of a mule string, riders will stop until the condor leaves on its own, or permitted personnel employ techniques that result in the individual condor leaving the area
- Construction workers and supervisors will be instructed to avoid interaction with condors, and to contact appropriate park or Peregrine Fund personnel immediately if and when condor(s) occur at a construction site
- The construction site will be cleaned at the end of each day work is conducted (i.e., trash disposed of, scrap materials picked up) to minimize likelihood of condors visiting the site. Park condor staff will complete a site visit to the area to ensure adequate clean-up measures are taken
- To prevent water contamination and potential condor poisoning, the park-approved vehicle fluid-leakage and spill plan will be adhered to for this project. This plan will be reviewed by the park's Wildlife Biologist to ensure adequacy in condor protection for this project
- If condor nesting activity is known within 0.5 miles of the project area, light and heavy construction in the project area will be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the park's Wildlife Biologist and the U.S. Fish and Wildlife Service (USFWS)

Mexican Spotted Owl (MSO)

- The park's Wildlife Biologist will be contacted annually for any new information related to MSO or their status near the project areas

Soundscapes To minimize construction impacts on soundscapes, the following mitigation measure will be implemented:

- To reduce noise, construction equipment or vehicles carrying stock will not be left idling any longer than is necessary for safety and mechanical reasons, and no construction will occur at night

Cultural Resources To minimize impacts on cultural resources, the following mitigation measures will be implemented:

- If previously unknown archeological resources are discovered during the project, a park Archeologist will be contacted immediately. All work in the immediate vicinity of the discovery will be halted until the resources can be identified, documented, and an

appropriate mitigation strategy developed, if necessary, in accordance with stipulations of the applicable programmatic agreements among the National Park Service, the Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation

- If after development of site specific plans for each undertaking described in the EA, we determine that an adverse effect to historic properties cannot be avoided, NPS will reinitiate consultation with the State Historic Preservation Officer and affiliated Native American tribes
- All park staff, concessioners, and others with knowledge of the discovery will be informed of the penalties of illegally collecting artifacts or intentionally damaging any archeological or historic property, and will be informed of correct procedures if previously unknown resources are uncovered during project activities
- Areas selected for equipment and materials staging are expected to be in existing disturbed areas where there is no potential for archeological resource disturbance; these locations will be reviewed by the park Archeologist
- The park Archeologist will review all new construction activities for impact potential and may recommend inventory survey and/or construction monitoring
- Commercial mule and horse riders will be accompanied by concessioner guides at all times including during breaks when riders dismount
- Commercial mule and horse guides will follow the park's archeological site disclosure policy when informing visitors about archeological resources
- Archeological sites within the area proposed for new rim rides will be monitored for impacts, disturbances and changes in site condition

Visitor Experience The following mitigation measure will be implemented to minimize impacts on visitor experience:

- Unless otherwise approved by the park, operation of heavy construction equipment will be restricted to dawn to dusk, year-round

Park Operations and Safety The following mitigation measure will be implemented to minimize impacts on park operations, and minimize safety risks to employees, visitors, and residents:

- NPS, concessionaires, other park employees, and residents will receive public notification on project implementation and trail closures, trail restrictions, road delays, or road closures, as appropriate

Air Quality Air quality impacts are expected to be temporary and localized. To minimize these impacts, the following actions will be taken:

- To reduce entrainment of fine particles from hauling material, sufficient freeboard will be maintained, and loose material loads (aggregate, soils, etc.) will be tarped
- To reduce tailpipe emissions, construction equipment will not be left idling any longer than necessary for safety and mechanical reasons
- To reduce construction dust in the short term, water will be applied to problem areas. Equipment will be limited to the fenced project area to minimize soil disturbance and consequent dust generation
- Landscaping and revegetation will control long-term soil dust production. Mulch and plants will stabilize soil and reduce ground surface wind speed/shear

ALTERNATIVES CONSIDERED

The following alternatives were considered in the EA.

Alternative A No Action

Under this alternative, temporary changes implemented in 2009 (restricting stock use below Supai Tunnel; temporary South Kaibab Trail closure to stock use; addition of a rim ride from the mule barn in Grand Canyon Village, along Rowe Well Road to the Abyss; and the toilet and hitching rail at Uncle Jim Point) would have been terminated if this alternative was selected. This alternative is not selected for this project.

Alternative C South Kaibab/North Kaibab

This alternative was considered to specifically address trail conditions and user conflicts on South Rim Inner Canyon trails, a request from the current concessioner to construct bypasses and/or widen the North Kaibab Trail to alleviate crowding and user conflicts, public interest in increased opportunities for mule rides in the park, and concerns related to the Uncle Jim area located in proposed wilderness. Primary elements included 1) hosting all stock use on South Kaibab Trail from South Rim into canyon, 2) construction of bypasses and trail widening on North Kaibab Trail, 3) increased opportunities for mule rides parkwide, and 4) limiting stock use and development at Uncle Jim Point. This alternative is not selected for this project.

Alternative D Bright Angel/Uncle Jim

This alternative was considered to specifically address trail conditions and user conflicts on South Rim Inner Canyon trails, trail conditions and user conflicts on North Kaibab Trail, and the GMP-recommendation to relocate South Rim concessioner mule operations. Primary elements included 1) hosting all stock use on Bright Angel Trail from South Rim into canyon, 2) development of an above-rim ride to the west of the Village area (as opposed to east as proposed under Alternative B and C), 3) same maximum number of rides each year on North and South Rim for comparison, 4) limiting stock use on North Kaibab Trail, 5) and increasing use on Uncle Jim Trail and at Uncle Jim Point. This alternative is not selected for this project.

Alternative E Seasonal and Limited Stock Use

This alternative was considered to specifically address trail conditions and user conflicts on stock-use trails and resource concerns with development associated with stock use (i.e., new trails and restroom). Primary elements included 1) seasonal stock use from South Rim into the canyon (open April through December, closed January through March), 2) no above-rim South Rim ride, 3) limited commercial mule rides on North Kaibab, Uncle Jim and Ken Patrick Trails, 4) fewer rides annually on North and South Rim compared to current, 5) and removal of hitching rail and toilet at Uncle Jim Point. This alternative is not selected for this project.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Environmentally Preferred Alternative is determined by applying criteria suggested in the National Environmental Policy Act of 1969 which guides the Council on Environmental Quality (CEQ). CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA Section 101”

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Through the process of internal and public scoping, the Environmentally Preferred Alternative selected is Alternative B, the Preferred Alternative. Alternative B best meets the purpose and need for action and best addresses overall NPS objectives and evaluation factors while minimizing impacts to park resources. Alternative B promotes safe, healthful, productive, and aesthetically and culturally pleasing surroundings, identified in Criteria 2. Alternative B also protects important historic and cultural resources identified in Criteria 4. Finally, this Alternative best achieves a balance between population and resources use, as identified in Criteria 5.

WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the criteria listed below.

Impacts may be both beneficial and adverse

Implementation of the Preferred Alternative will result in both beneficial and adverse impacts; however, the overall benefit of the proposed changes, particularly to park operations, outweighs any negative effects.

Adverse effects from development of a new mule trail above the rim include disturbance of approximately two to four acres of vegetation, wildlife habitat, and soils and potential to impact cultural resources through ground disturbance. The expansion of the South Kaibab Trailhead barn could also result in adverse impacts to this historic structure; however measures are included to minimize these adverse impacts. Beneficial effects will also occur from development of a new mule trail above the rim by providing more opportunities for commercial mule rides. These rides will be shorter and less expensive and more accessible to many visitors.

The continuation of stock use in the park will result in soil compaction and erosion on trails, although with reduced numbers of mule rides into the canyon the compaction and erosion will be less than it has been in the past. Similarly, potential water contamination and increased turbidity particularly in Garden and Pipe Creeks will be less than it has been in the past due to decreased numbers of mule rides on Bright Angel Trail.

Brown headed cowbirds attracted to stock facilities are known to parasitize songbird nests and will likely continue to occur on the South Rim. Birds will be monitored and managed as funding is available.

Development of a composting toilet and retention of hitch rails at Uncle Jim Point will result in potential increased visitation to archeological sites, increased noise due to greater numbers of stock users, potential introduction and spread of invasive plants, and negative impacts on wilderness character. However, the installation of a toilet in this area will address concerns with

human waste and trash and will have a beneficial impact on visitor experience and limit resource damage.

The changes in commercially operated mule rides will have both adverse and beneficial impacts for different types of visitors. Visitors seeking commercial stock use opportunities will likely be disappointed in the reduction of Inner Canyon commercial mule rides available from South Rim and limits placed on commercial mule rides from and on North Rim, including elimination of commercial stock use below Supai Tunnel on North Kaibab Trail. Hiking visitors may experience continued conflicts and mule waste on park trails, although efforts are proposed to decrease these impacts. Hiking visitors are expected to be pleased with active management of mule waste on trails; continued opportunities for visitors to ride mules in Grand Canyon, both commercially and privately; improved trail conditions on Corridor Trails; and increased education of park visitors.

The overall benefits of implementing the Preferred Alternative include lessened conflicts between trail users; lower costs for trail maintenance; continued stock use; lessened resource impacts below Supai Tunnel, including water quality at Roaring Springs; and increased annual limits for commercial mule rides when compared to average annual use on both North and South Rim.

Degree of effect on public health or safety

Implementation of Alternative B will result in moderate beneficial long-term impacts to public health and safety from improved trail conditions, minimized potential for user conflicts, and installation of a composting toilet at Uncle Jim Point. Short-term adverse minor impacts during construction will occur at South Kaibab Trailhead mule barn and during trail maintenance. Cumulative impacts will be moderate beneficial long term.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

The Preferred Alternative will not impact unique characteristics of the project areas including park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas because these resources do not exist in the project areas. The Preferred Alternative will impact the Yaki Point Mule Barn and has potential to impact archeological sites through ground disturbing activities.

Degree to which effects on the quality of the human environment are likely to be highly controversial

Throughout the NEPA process, the proposal to change stock use within the park was controversial. Some public comments during scoping and on the EA reflected a misconception of the project and the park's objectives. Individuals thought that the park was proposing to eliminate all stock use in Grand Canyon and their comments expressed frustration and anger with the park. The park identified an objective to "provide opportunities for mule and stock use in Grand Canyon National Park to as large a cross section of visitors as practicable." Elimination of stock use did not meet that objective and therefore was not considered in the EA.

The park received 278 comments during public scoping and 178 during public review of the EA. A broad range of comments were received from those that wanted stock use eliminated or greatly reduced to others that wanted more use and trails opened for stock use. Many people are passionate about stock use and access by stock and it is anticipated that this use will continue to be controversial.

Although the project itself was controversial, the impacts were not controversial as evidenced by the fact that only 30 comments challenged the impact analysis. In addition, the number of comments received during scoping (278) and on the EA (178) was low considering that over 4 million people visit Grand Canyon National Park each year.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks

As previously described, risks involved in the Preferred Alternative relate to public safety. Short-term risks from construction activities are expected; however, mitigation measures are in place to reduce this risk. The environmental process did not identify any effects that may involve highly unique or unknown risks.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

The Preferred Alternative neither establishes a precedent for future actions with significant effect nor represents a decision in principle about a future consideration. Actions described in the Mule Operations and Stock Use EA are needed to address trail maintenance issues and user conflicts. This project does not preclude future decisions within Grand Canyon National Park or in other park units.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts

The Preferred Alternative will not result in any major (significant) cumulative effects.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Implementation of the Preferred Alternative has the potential to impact archeological resources, the historic South Kaibab Trailhead barn, and the Cross Canyon Corridor Historic District. Mitigation measures have been developed to minimize adverse impacts to these resources.

The Preferred Alternative will result in minor adverse long-term impacts to historic structures and cultural landscapes from relocation of most commercial stock to the South Kaibab Trailhead barn, expansion and improvements to this barn, and expansion of private stock camps located in the Cross Canyon Corridor Historic District. Minor beneficial long-term impacts to historic structures and cultural landscapes will also result from continued stock use on Corridor Trails. These impacts would result in a no adverse effect determination for §106.

Implementation of the Preferred Alternative could result in moderate adverse long-term impacts to archeological and ethnographic resources from development of an above-rim ride and potential direct impacts to archeological sites. However, known sites will be avoided in development of the trail for this ride to minimize the potential for adverse impacts. Site avoidance would result in a no adverse effect determination for §106.

The NPS contacted the Arizona State Historic Preservation Officer (SHPO) at the beginning of the NEPA process, in May 2009 during public scoping for the environmental assessment (EA). At that time, the park did not have a proposal, but instead solicited input from the public and SHPO on potential issues to be addressed in the EA related to mule operations and stock use. The SHPO did not have any input during this initial stage of project planning.

In March 2010, the NPS sent a letter to the SHPO to initiate the development of a programmatic agreement (PA). A PA was suggested because the impacts of the undertakings proposed in the EA could not be determined at the time the EA was completed. Through additional project planning and correspondence between the SHPO and NPS, an agreement was reached and a determination made that the park could avoid adverse impacts to cultural resources.

Compliance with §106 of the National Historic Preservation Act was completed with a letter from the Arizona State Historic Preservation Office on November 9, 2010. The letter stated that the SHPO would concur with the NPS determination of no adverse effect to historic properties based on the following stipulations:

- Archeology: Adverse effects to archeological resources will be avoided in development of the above-rim mule ride.
- Historic Structures: 1) Alterations to the South Kaibab Trailhead mule barn will comply with the Secretary's Standards for the Treatment of Historic Properties. 2) SHPO will be provided an opportunity to comment on the project program and 15% construction documents for the proposed alteration of the barn.

If these stipulations cannot be met or there is disagreement that the stipulations have been met, NPS will reinstate §106 consultation with SHPO.

All affiliated Native American tribes were also contacted at the beginning of the NEPA process, during scoping in May 2009, to determine if there were any ethnographic resources in the project areas. These tribes included the Havasupai Tribe, Hopi Tribe, Hualapai Tribe, Kaibab Band of Paiute Indians, Las Vegas Paiute Tribe, Navajo Nation, Paiute Indian Tribe of Utah, Pueblo of Zuni, San Juan Southern Paiute Tribe, White Mountain Apache, and Yavapai-Apache Nation. No responses were received following this initial communication.

A letter to affiliated tribes with an enclosed EA for Mule Operations and Stock Use was sent out on March 30, 2010. In the letter, tribes were afforded the opportunity to comment on the EA as part of the public review or to meet for government-to-government consultation regarding any of the elements described in the EA.

The park received two responses to this correspondence, from the Hopi Tribe and the Navajo Nation. On April 22, 2010, the park received a letter from the Hopi Tribe acknowledging receipt of the EA and expressing interest in protecting the archeological resources between Yaki Point and Shoshone Point. On May 5, 2010, the park's Tribal Program Manager received a phone call from the Navajo Nation expressing interest in meeting to learn more about the EA. Park staff met with a representative of the Navajo Nation on May 19, 2010. The Navajo Nation was interested in visiting the archeological resources between Yaki Point and Shoshone Point, and concerned with any future impacts to these resources. Park archeologists have agreed to meet with tribal representatives to visit archeological sites in the project area.

On June 12, 2010, NPS sent another letter to the affiliated tribes listed above. The letter stated that through additional project planning, the NPS intended to avoid adverse impacts to cultural resources by avoiding all archeological sites in development of an above-rim mule ride, and that the project will result in a finding of no adverse effect. Tribes were encouraged to respond with questions or concerns regarding this determination. Responses were received from the Navajo Nation, Moapa Band of Paiute Indians, Paiute Indian Tribe of Utah, and the Hopi Tribe. All agreed with the NPS finding of no adverse effect if archeological sites are avoided.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat

During public scoping, in June 2009, the U.S. Fish and Wildlife Service sent a letter to the park identifying several special status species to be considered. These species included the southwestern willow flycatcher, Mexican spotted owl, California condor, and sentry milk vetch. Park staff reviewed maps of these species' locations, critical and potential habitat, species recovery plans and current literature, and assessed impacts to these species. In addition, precautionary conservation measures were included in the EA in the event that a California condor occurs in any of the project areas. Based on this information, the park's Section 7 Coordinator in coordination with park resource specialists determined this project will have *no effect* on special status species; therefore no additional consultation is necessary.

Whether the action threatens a violation of Federal, state, or local environmental protection law

The Preferred Alternative violates no Federal, state, or local environmental protection laws.

APPROPRIATE USE

Sections 1.5 and 8.12 of NPS Management Policies underscore that not all uses are allowable or appropriate in national park system units. The proposed use was screened to determine consistency with applicable laws, executive orders, regulations, and policies; consistency with existing plans for public use and resource management; actual and potential effects to park resources, and whether the public interest will be served.

Recreational uses of national parks are fundamental to the parks' and the National Park Service's existence. The locations, forms, and levels of such recreational uses, including stock use, must be determined in such a way that park resources and values and visitor experience are preserved.

Stock use and development of associated infrastructure is not inconsistent with any laws, executive orders, regulations, policies, or laws. The park's 1995 General Management Plan (GMP) states that the park will

- *Provide a diverse range of quality visitor experiences, as appropriate, based on resources and values of Grand Canyon, compatible with protection of those resources and values*
- *Provide access appropriate and consistent with the character and nature of each landscape unit and the desired visitor experience*
- *Where livestock and visitors share the same trails and areas, minimize conflicts and resource impacts, and enhance safety*
- *Provide a quality backcountry experience consistent with historic uses of the cross-canyon corridor*
- *Maintain the Bright Angel, North Kaibab, South Kaibab, and River Trails to accommodate high levels of backcountry visitor use*

For the reasons described above, the NPS finds that stock use and associated development is an appropriate use in Grand Canyon National Park.

IMPAIRMENT

National Park Service's Management Policies, 2006 require analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities

Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment, but an impact would be more likely to constitute an impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action would have major (or significant) effects.

Impairment findings are not necessary for visitor use and experience, socioeconomic, public health and safety, environmental justice, land use, and park operations, because impairment findings relate back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, topics remaining to be evaluated for impairment include historic resources and cultural landscapes, archeological and ethnographic resources, vegetation, general wildlife, water resources, and wilderness character.

Fundamental resources and values for Grand Canyon National Park are identified in the 1995 General Management Plan and 2010 Foundation Statement. Of the impacts topics carried forward in the environmental assessment, historic resources and cultural landscapes, archeological and ethnographic resources, vegetation, general wildlife, water resources, and wilderness character are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's General Management Plan or other relevant NPS planning document.

- **Historic Resources and Cultural Landscapes** – Grand Canyon National Park contains a large number of historic resources that are nationally significant with over 500 listed or eligible for listing on the National Register of Historic Places. In addition, nine buildings are individually listed National Historic Landmarks and three districts are National Historic Landmark Districts. Implementation of the Preferred Alternative will result in minor adverse long-term impacts from relocation of most commercial stock to South Kaibab mule barn, and expansion and improvements to this barn; and minor beneficial long-term impacts from continued stock use on Corridor Trails. Based on these impacts and because they will not exceed minor, the Preferred Alternative will not result in impairment to historic resources or cultural landscapes.
- **Archeological and Ethnographic Resources** – The Grand Canyon protects an important cultural history. More than 12,000 years of human occupation have resulted in an extensive archeological record. The park preserves thousands of archeological sites many of which remain unknown. Eleven American Indian tribes have known ties to Grand Canyon, and some consider the canyon their original homeland and place of origin. Under the Preferred Alternative, moderate adverse long-term impacts could result from development of above-rim ride and potential impacts to archeological sites; increased visitation at Uncle Jim Point, ground disturbance from improvements at South Kaibab Trailhead barn, and installation of a composting toilet at Uncle Jim Point. Due to protective efforts, such as avoiding known archeological resources in developing a new trail and application of the Secretary's Standards in expansion of a historic barn; and because impacts will not exceed moderate, the Preferred Alternative will not result in impairment.
- **Vegetation** – Grand Canyon National Park possesses outstanding biodiversity including the occurrence of three of North America's four deserts and five of Merriam's seven life zones. The park also serves as an ecological refuge, with generally undisturbed remnants of dwindling ecosystems such as boreal forest and desert riparian communities, and numerous endemic, or specially protected plant species. The Preferred Alternative will result in moderate adverse long-term impacts to vegetation from development of an above-rim ride

on South Rim, and installation of composting toilet and retention of hitch rail at Uncle Jim Point. These actions will remove 2-4 acres of vegetation and have the potential to introduce and spread invasive plant species. Because these impacts will not exceed moderate and will not impact special status plant species or unique vegetation types, the Preferred Alternative will not result in impairment to vegetation.

- **General Wildlife** – Grand Canyon National Park is a valuable resource for wildlife due to its size, elevation range, associated habitat variety, and integrity. Viable populations of wildlife are necessary to fulfill purposes for which the park was established, and are key to the park's natural integrity. Preferred Alternative actions will have minor adverse long-term impacts from occurrence of brown-headed cowbirds and their impact on native song birds, removal of wildlife habitat for the above-rim ride, and noise disturbance from stock use. Because these effects will only be minor, the Preferred Alternative will not result in impairment to general wildlife.
- **Water Resources** – Water is Grand Canyon's lifeblood – a force of erosion, sustainer of scarce riparian habitat in a desert environment, spiritual element for native peoples, provider of recreation, and central factor in exploration, development, and politics of the American West. Preferred Alternative actions will result in minor beneficial long-term impacts from relocation of Indian Garden mule barn and elimination of commercial mule rides to Roaring Springs day use area which will decrease potential for surface water contamination; and minor adverse short-term impacts from potential contamination of surface water and increased turbidity. Based on these impacts and because they will not exceed minor, the Preferred Alternative will not result in impairment to water resources.
- **Wilderness Character** – Nearly 94% of Grand Canyon National Park is proposed for wilderness designation. Elements of wilderness character in remote park areas are necessary to fulfill purposes for which the park was established, and are key to the park's natural integrity. Preferred Alternative actions will have moderate adverse, short-term and long-term impacts on wilderness character from installation of new facilities (composting toilet and hitch rails) in proposed wilderness and potential encounters with stock users and impacts to sounds and sights on trails. These impacts are localized and will not exceed moderate impacts; therefore, the Preferred Alternative will not result in impairment to wilderness character.

In addition, the mitigation measures described in the EA and listed in this FONSI starting on page 10 will further lessen the degree of impact to and help promote the protection of these resources.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the Preferred Alternative.

PUBLIC INVOLVEMENT

The EA was made available for public review and comment during a 45-day period ending April 30, 2010 through issuance of a press release and posting on the Planning, Environment and Public Comment (PEPC) website (<http://parkplanning.nps.gov/grca>). In addition, the park held three public meetings in Arizona and Utah. These meetings occurred on March 22 in the South Rim Village of Grand Canyon National Park, Arizona; on March 24 in Kanab, Utah; and on March 25, 2010 in Flagstaff, Arizona.

A total of 178 comments were received during public review of the EA. Thirty-eight comments were received from members of recreation groups (backcountry horsemen groups and saddle clubs); two from conservation organizations; two from park concessioners; one from the Arizona Department of Environmental Quality and 135 from unaffiliated individuals. A wide variety of comments were received and a majority supported retention of at least some level of stock use in the park. Approximately one-third of comments did not support the placement of any limitations on stock use and therefore did not support the Preferred Alternative.

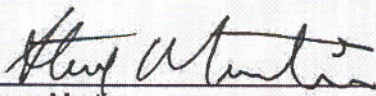
Substantive EA comments centered on 14 topics including private stock use, trail conditions, funding, accessibility, user conflicts, adaptive management, NEPA process, safety, location of rides, and number of rides. These concerns are addressed in the errata sheets attached to this FONSI. The FONSI and errata sheets will be announced by press release and posted on PEPC.

CONCLUSION

As described above, the Preferred Alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The Preferred Alternative will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short to long term, and negligible to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation will not violate any Federal, state, or local environmental protection law.

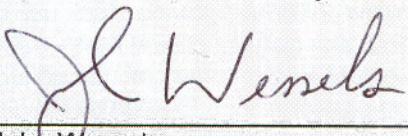
Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended:


Steve Martin
Superintendent, Grand Canyon National Park

11/29/10
Date

Approved:


John Wessels
Regional Director, Intermountain Region

1/5/11
Date

ERRATA SHEET
MULE OPERATIONS AND STOCK USE
ENVIRONMENTAL ASSESSMENT
Grand Canyon National Park

According to NPS policy, substantive comments are those that 1) question the accuracy of the information in the EA, 2) question the adequacy of the environmental analysis, 3) present reasonable alternatives that were not presented in the EA, or 4) cause changes or revisions in the proposal.

Some substantive comments may result in changes to the text of the EA, in which case, they are addressed in the Text Changes section of the Errata Sheets. Other substantive comments may require a more thorough explanatory response and are addressed in the Response to Comments section. NPS responds to all substantive comments in either or both of these sections.

Substantive comments for this EA centered on 2 topics: an additional alternative and employee parking. These concerns resulted in minor changes to the text of the EA and are also explained more thoroughly in the Response to Comments section.

TEXT CHANGES

Page 91, Visitor Experience, Affected Environment: Add to end of first paragraph, *Stock use has been one traditional way for visitors to have an appropriate, high-quality opportunity of enjoying the park resources and values.*

RESPONSE TO SUBSTANTIVE COMMENTS

Private Stock Use

Comment: Private stock users will be prohibited from using a number of trails in the park without any justification.

Response: The Preferred Alternative will allow continued private stock use on the Bright Angel, South Kaibab, and North Kaibab trails without any daily or annual limits. Alternatives C, D, and E of the EA consider limiting private stock use similar to commercial use under each alternative. NEPA requires the NPS to consider a range of alternatives to address the project objectives which is why different levels of private stock use were considered in some alternatives.

Comment: Expand private stock use, overnight and day use, to include all park trails.

Response: The NPS considered and dismissed an alternative to open additional inner canyon trails to stock use. This was dismissed due to the increased trail maintenance needs and associated costs and potential user conflicts that would result from allowing stock use on additional trails in the park.

Comment: Parking areas need to be reviewed to insure adequate parking is available for private stock users wishing to use particular trailheads.

Response: The adequacy of parking areas for stock users was not raised during scoping as an issue and therefore was not included in the EA. If problems exist with parking areas, the park can address these on a site-by-site basis.

Comment: There should be more description of how private stock users will be regulated and exactly how this enforcement will be funded. Will private stock users have guidelines or regulations for cleaning animals prior to entering the park or what type of feed can be brought in so as to limit non-native plant infestations?

Response: Appendix A of the EA provides the current private stock use guidelines including the required use of weed free forage. This information is also available online at <http://www.nps.gov/grca/planyourvisit/private-stock.htm>. Cleaning animals before entering the park is not currently required. In addition, funding for the enforcement of requirements was not raised during scoping and was not included in the EA.

Funding

Comment: The park should expand fee collection from all trail users by adding a 10% surcharge to all mule rides; and instituting a fee system for day users, \$5 per day per stock user, and \$3 per day per hiker. All proceeds should be used directly for trail maintenance.

Response: Concessioners operating mule rides in Grand Canyon National Park pay a franchise fee to the NPS which is currently approximately 4% of gross receipts. NPS policies provide guidance on commercial services, such as mule rides, and state that rates for services will be approved primarily on their comparability to current rates for similar services outside the park. Therefore, a 10% increase would only be feasible if the rates were comparable to services outside the park.

In addition to the franchise fee paid by concessioners, contracts may require a maintenance reserve fund to maintain and repair buildings, utilities, and other infrastructure assigned under the contract. Trails are not included in either of the concessioners' assigned facilities; the NPS is responsible for the majority of upkeep and maintenance of these trails.

Regarding day hiking and stock use, these activities are not currently limited and no fees are required. Overnight hikers and stock users must obtain a backcountry permit and the cost is \$10 for a permit plus \$5 per person and \$5 per stock per night. Changes to hiking and backpacking use and fees will be considered in the upcoming Backcountry Management Plan. No changes are currently proposed to charge for stock day use.

Comment: The only other acceptable alternative is for the concessioners to pay in full for trail maintenance to the North and South Kaibab and Bright Angel Trails.

Response: Under current NPS policy, a trail would need to be assigned to the concessioner for the exclusive use of its clients in order for the concessioner to be solely responsible for its maintenance. Although the South Rim mule ride concessioner does complete some trail maintenance, the NPS cannot make it the concessioner's responsibility to fully maintain the trails for the public.

Comment: The EA describes a shortage of funds to accomplish needed trail maintenance; however, information regarding funding was not included.

Response: Chapter 1 of the EA included information regarding funding. Funding for trail work comes from park entrance fees, concessions franchise fees, and other Federal sources such as the American Recovery and Reinvestment Act of 2009 (ARRA). On an annual basis, the NPS spends between \$1.5 and \$2 million each year to minimally maintain the trails in the park; the

majority on Corridor Trails. However, the NPS estimates \$3 million is needed to prevent further increases in deferred maintenance costs. In addition, Chapter 2 stated that the NPS plans to continue to seek funding opportunities for trail maintenance including the use of volunteers particularly on stock use trails above the rim.

Comment: None of the alternatives address this issue from a fee perspective.

Response: The NPS evaluated each alternative's impact on park operations and socioeconomic environment which included discussion of financial impacts. Also see responses above related to franchise fees, backcountry permits, and costs associated with trail maintenance.

Comment: There is a claim that the Grand Canyon receives too little trail maintenance funding and yet there are no figures on how much has ever been spent each year on these specific trails.

Response: As stated in Chapter 1 of the EA, the NPS estimates that between \$1.5 and 2 million dollars are spent each year to minimally maintain the three corridor trails, Bright Angel, South Kaibab, and North Kaibab.

Trail Conditions and Maintenance

Comment: The EA fails to address the impacts on trails caused by inadequate maintenance over the years even though trail professionals clearly understand that inadequate maintenance is one of the primary reasons that trails deteriorate.

Response: The NPS agrees that the trails have not been adequately maintained. Chapter 1 of the EA describes the disrepair and deferred maintenance of the trails which sets a baseline for current trail condition and the need to improve trail conditions.

Comment: It is clear that the Park Service had not had a consistent policy in how to maintain trails. The trails are not maintained for continuous mule use or strictly for hikers. We can see by the long-lived Grandview and Hermit trails what must be done to insure that trails do not deteriorate over time with heavy mule use.

Response: The NPS agrees that there has not been a consistent policy on how to maintain trails and this has added to the current condition. However, the NPS disagrees that the trails do not meet the needs of hikers or stock users. The park has always strived to accommodate the needs of all trail users, particularly on the most trafficked, main corridor trails. As discussed above, the park has not reconstructed the trails to create a durable tread, but instead has only minimally fixed the trails since they were constructed. At this point, many of the trails are in need of reconstruction.

In July 2010, the park finalized a trail standards document. This document is based on the Interagency Trail Data Standards (<http://www.nps.gov/gis/trails/>) and includes specific construction methods for trails in Grand Canyon. For the corridor trails, a combination of methods will be used depending on the slope of each trail section. For example, trail grades 18% and above will be constructed using rip-rap, similar to sections of the Grandview and Hermit Trails (see Figure 1), grades between 13% and 17% will be a modified rip-rap (Figure 2), and 12% and below will be a check and crushed stone design (Figure 3).

Figure 1. Rip Rap Design

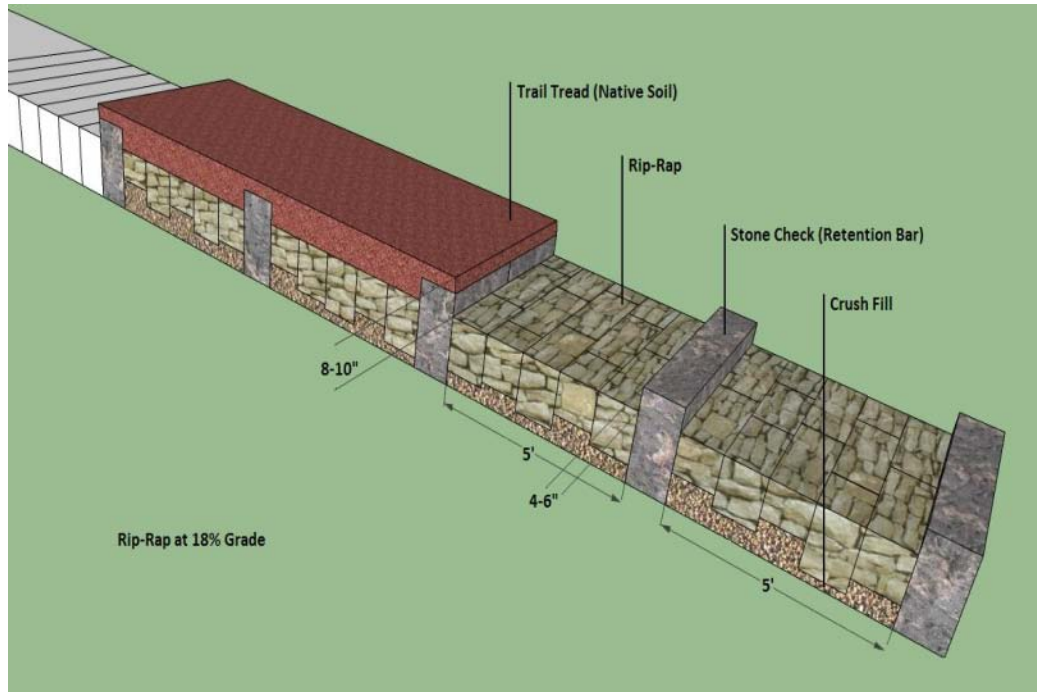


Figure 2. Modified Rip Rap Design

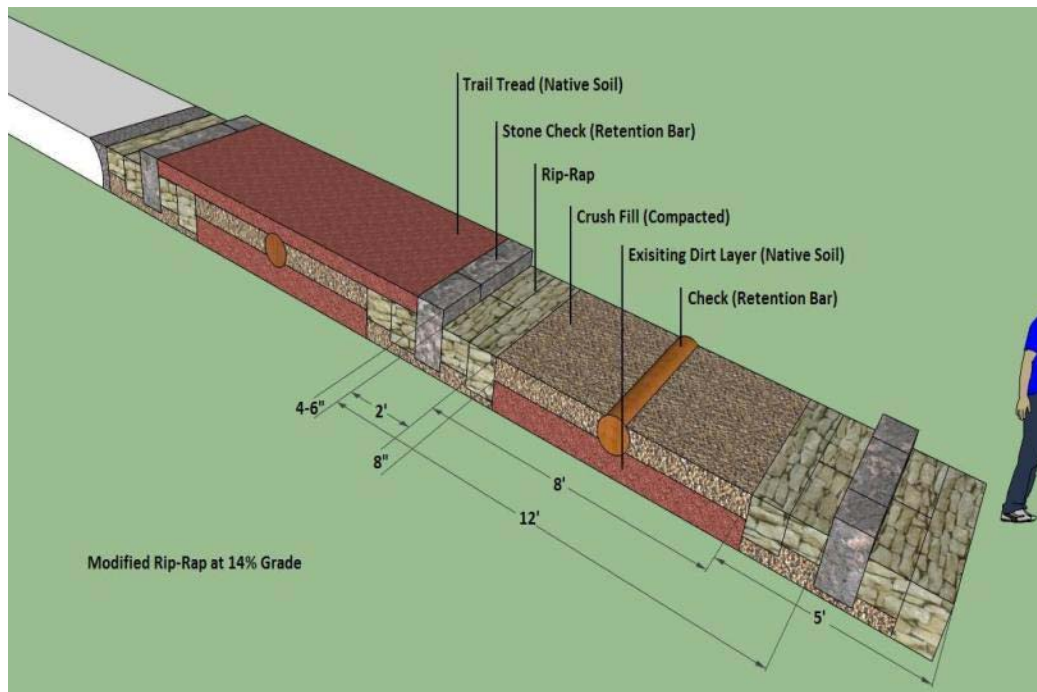
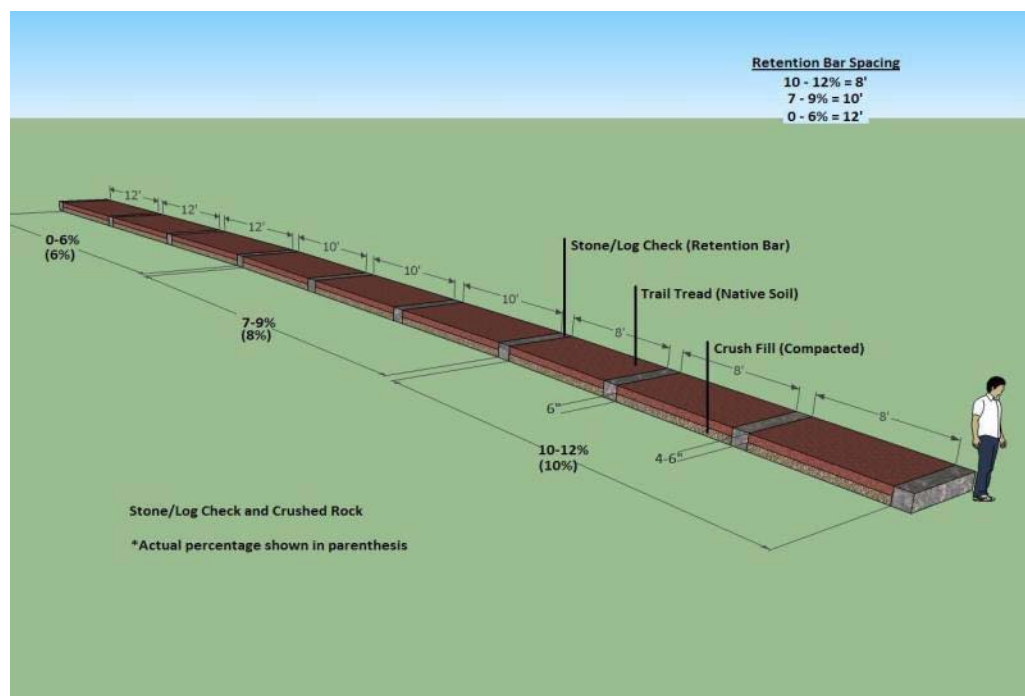


Figure 3. Check and crushed stone design



These trail standards will provide the guidance for consistent maintenance and reconstruction. Additional standards have been developed for trails outside of the main corridor. Other trails, except for the rim trails, are less developed and require less construction than described here. In addition, the NPS will be increasing the annual trail maintenance budget to work to meet these standards, including application of dirt on trails each year.

Comment: If the intent is to create smooth dirt paths then, one could consider the trails to be in bad shape. But if all that is needed is a generally safe surface for mule traffic and the average hiker, then maybe something less will suffice. The assessment indicates that the trails have deteriorated significantly over the past 60 to 80 years. I can't assess the accuracy of this claim, but I suspect that back then the trails had ruts and depressions even as today.

Response: The goal for these trails is to construct a durable trail surface that will require minimal trail work each year. See Figures 1, 2, and 3 for construction methods. The park does not envision smooth, "perfect" trails because the canyon trails are susceptible to annual erosion and continued use will result in some rutting and normal wear.

It is likely that some ruts and depressions have existed on these trails since their initial construction. However, since that time the NPS has not reconstructed the trails, but instead fixed trail features and sections as needed and applied dirt to the trail as a temporary solution. Full reconstruction of these trails is needed to create durable, long-lasting trails.

Comment: In 1924, the Park Service built the South Kaibab trail from scratch for \$70,000. Using available inflation data, that would translate into about \$1 million today. Yet, the park maintains that it has a \$24 million backlog of trail maintenance.

Response: NPS used the Facility Management Software System (FMSS) to estimate deferred maintenance costs on the corridor trails. Information from condition assessments are entered into this computer database for every trail structure along the length of a trail. Structures include wood and stone retainers, wood and stone water bars, stone and log liners, and retaining walls. Each of these structures has an associated replacement cost which is used for missing structures, or those in fair or poor condition. The replacement cost is an actual cost recorded by the park.

For example, along the first mile of the Bright Angel Trail there is 640 linear feet of log liner that is in fair or poor condition. The cost to replace one linear foot is \$48.32. Therefore, the deferred maintenance cost (640 feet x \$48.32/foot) is \$30,924.80. When the costs of water bars, liners, and retaining walls are added up for the 30 miles of corridor trails, the park estimates more than \$24 million in deferred maintenance costs.

Comment: There are Back Country Horsemen of America (BCHA) chapters in the vicinity of the Grand Canyon that would be willing to help maintain the trails in order to keep them open to stock use. This is a volunteer organization which is equipped to build, monitor, and maintain trails in our parks and other public lands, and is currently doing so all over this country.

Response: Grand Canyon National Park's Volunteer Coordinator has been in communication with the BCHA to coordinate volunteer efforts. Due to technical nature of trail work in the inner canyon and amount of training required, small groups (less than 10) of volunteers or individuals are generally required to work for a minimum of two weeks. Above rim trail maintenance and other projects can better accommodate larger groups for smaller amounts of time. NPS will continue to work with BCHA to seek appropriate volunteer projects.

NEPA Process

Comment: It seems that the major conclusions and proposals were formed very early in the process and that subsequent fact-finding, hearings, and the assessment itself were largely exercises in ratifying what had already been predetermined. After all, if an alternative is labeled "preferred" and given the most publicity and text, someone obviously prefers it and wants to see it implemented.

Response: The NPS disagrees with the suggestion that decisions related to mule operations and stock use were predetermined. Park staff engaged in internal scoping in 2008 and 2009 to identify problems and potential solutions related to mule operations and stock use. In May 2009, when public scoping occurred, the NPS did not have a proposal, but instead outlined the issues that needed to be addressed including trail conditions, visitor conflicts, and resource concerns. After public scoping, the NPS developed a range of alternatives to be analyzed in the EA and selected a preferred alternative. The NPS is required to identify a preferred alternative in an EA, as guided by the Director's Order 12 Handbook.

Comment: The NPS guidance on NEPA, the DO-12 states the NEPA should be holistic. The Mule Operations and Stock Use EA states its purpose is to ... "examine environmental impacts associated with this proposal to make changes to stock use and mule operations in the Grand Canyon National Park." The EA was triggered by a management decision to reduce stock use within the Grand Canyon.

Response: The NPS disagrees with the statements that the NEPA process was not fully considered in preparation of the EA. The Purpose and Need for the EA as described in Chapter 1 was "to address resource, visitor experience, geographic, and financial challenges associated

with mule operations and stock use.” The EA expands on this and discusses the concerns with trail conditions, visitor conflicts, stock facilities and infrastructure, and concession contracts. Objectives are also identified which guided the development of the alternatives. The EA itself does examine environmental impacts of all alternatives developed for the project which is the purpose of NEPA.

The project was not constructed to reduce stock use, but as stated above, to address resource, visitor experience, geographic, and financial challenges associated with mule operations and stock use.

Comment: This EA appears to allocate uses and levels of uses of different user categories on trails in GCNP, although the document fails to acknowledge this and does not do a complete analysis of the effects of all trail users in the park.

Response: The NPS identified several objectives in the EA including the following: Establish appropriate levels and types of stock use (i.e. number of stock per day, group size) on park trails that will allow for improved maintenance and reduced resource impacts and costs associated with trail maintenance. This objective was meant to allocate use for stock only.

Adaptive Management and Monitoring

Comment: Adaptive management strategies do not excuse the agency from meeting the requirements of NEPA.

Response: NPS agrees and as stated in Chapter 2 of the EA (page 25), "Additional compliance would be completed as required for each phase of adaptive management." Depending on the level and type of action considered, an environmental assessment may be necessary, including public involvement.

Comment: With regard to the adaptive management strategy, (1) what monitoring methods will be used?, (2) how often will monitoring be done?, (3) who will do the monitoring?, (4) what trigger point will be used for each monitoring method?, (5) what incremental management changes will be made in response to monitoring if trigger points are reached?, and (6) what are the environmental effects of these changes in management action?

Response: Monitoring will include trail assessments to measure deflation of tread; number, distribution and size of urine pools; trampling of vegetation in areas where animals are tethered; number, location and frequency of trail features replaced; amount of maintenance completed; and costs associated with trail work.

The park’s Facility Management Division completes basic condition assessments annually as time is available and comprehensive condition assessments every 5 years. In 2009, the park completed its second round of comprehensive condition assessments on the park trails.

Data for comprehensive condition assessments is collected in one mile segments and quantifies all manmade features along the trail. The number of retainer bars and water diversion devices, the size of retaining walls, and length of liner are recorded. Each feature is then categorized as being in good, fair, or poor condition. This information gives a baseline for future monitoring and maintenance needs.

Specific monitoring methods and trigger points will be developed and NPS staff will complete the monitoring. Any potential management actions will be evaluated in additional NEPA documentation as necessary and will address associated environmental impacts.

Comment: We request notification of monitoring data as it becomes available over the next several years after implementation of the Preferred Alternative as well as notification of any changes to the implemented alternative.

Response: When data and analyses become available, the NPS may make this available to the public upon request. Information on trail conditions and other factors that may have changed as a result of implementing the Preferred Alternative may be available in the future once trends are recognized.

Hikers

Comment: None of the alternatives would limit hikers who also have impacts on the trails. In addition, hikers and their impacts to the trails were not considered which appears to be biased.

Response: The EA was prepared to specifically address stock use and mule operations in Grand Canyon National Park. A Backcountry Management Plan will be prepared to address other activities and levels of use in the park's backcountry including hiking and backpacking. The NPS plans to initiate a NEPA process for the Backcountry Management Plan in early 2011.

Hikers on the trails where stock use occurs do add to the cumulative impacts. In particular hikers could unknowingly transport non-native plant materials along trails, add to the erosion of trails by short-cutting or simply walking on the trail, and add to crowded areas along the trails. In reviewing these and other potential impacts, the NPS acknowledges that hikers do add to cumulative impacts; however, these impacts will not change the intensity of cumulative impacts described in the EA.

Accessibility

Comment: Limiting the use and trails for stock would impact the opportunities of people who are unable to hike, to enjoy the full expanse of the park and could encroach on their rights.

Response: The NPS agrees that the mule rides provide opportunities for visitors to experience the inner canyon who would not be able to hike. The Preferred Alternative allows a variety of mule rides at levels that are expected to allow the trails to be better maintained for stock users and hikers, and to reduce user conflicts.

Comment: Many individuals with mobility, vision, or mental impairments are unable to hike the Grand Canyon trails and appropriate stock use can help restore the balance.

Response: The numbers of passengers with these types of impairments are not recorded by concessioners; however, the NPS agrees that the mule rides can provide opportunities to access the inner canyon. However, riding a mule into the canyon is strenuous and does require both upper and lower body strength and good overall muscular condition. Concessioners assess riders and their mobility, vision, hearing, or mental impairments on an individual basis.

Comment: Rather than continue the mule rides into the canyon for the few clients with disabilities, some of the cost savings from decreasing mule rides should be spent on improving the rim trails. This would be a more realistic service to park visitors who have mobility issues.

Response: Although the repair of rim trails is outside the scope of this EA, the NPS agrees that these trails should be well maintained for access by visitors. In addition, visitors with disabilities deserve to have the same range of choices that other visitors enjoy.

Resource Impacts

Comment: Dr. Stith T. Gower, Dept of Forest Management at the University of Wisconsin concluded in his 2006 study, "Non-native species composition and percent of total plants species did not differ between horse and hiker trails, and non-native plant species were only found within one meter of the trail." The results of this and other studies demonstrate that horse hay and manure contains seeds of nonnative plant species, but native and non-native plant species rarely become established on horse trails because of the harsh environmental conditions.

Response: The NPS acknowledges this study, but will continue to follow best management practices and current policies to require weed free forage for private and commercial stock use in the park. Use of weed-free feed is a form of prevention and reduces risks of introducing or spreading invasive plants.

Comment: We are concerned that the number of trail rides in wilderness study areas, e.g. the Uncle Jim Trail, and construction of new restrooms in these areas is not consistent with wilderness values or with the Park mandate to manage these areas as wilderness.

Response: A minimum requirement analysis (MRA) was included in the EA to assess the placement of restrooms at Uncle Jim Point which is located in proposed wilderness. The MRA determined that placement of restrooms was the minimum tool.

Helicopters

Comment: Consider using livestock as an alternative to helicopter exchanges to provide river access to river rafting passengers to shuttle river rafting passengers to and from the river at locations such as Whitmore Wash.

Response: The Colorado River Management Plan (CRMP) discussed and dismissed the use of mules or horses to transport river passengers at Whitmore Wash. The CRMP final environmental impact statement (FEIS) page 108 states, "Mule-based exchanges at Whitmore were eliminated from further consideration because of concerns about biophysical or cultural impacts. In addition, the NPS does not believe that it is feasible to upgrade or maintain the Whitmore Trail to the required stock use standards." In addition, the trailhead and staging areas for such activity is within the NPS portion of Grand Canyon - Parashant National Monument. The monument managers were consulted on stock use and hiker options for the Whitmore Trail exchanges and did not support developing facilities to support these uses. In fact, they removed some old buildings from the trailhead area.

Comment: Maintain NPS stock and wranglers for administrative duties that reduce the use of helicopters in the canyon.

Response: NPS plans to continue to utilize stock for administrative duties including supplying inner canyon ranger stations and transporting supplies for trail work and restroom maintenance. NPS also plans to continue helicopter use as necessary when materials exceed weight and size limitations for mules and for emergency medical evacuations.

Number of Rides

Comment: The number of mule rides should be flexible and adjust daily based on demand.

Response: The NPS has agreed to allow some flexibility for the North Rim mule concessioner to provide more opportunities for visitors to take a mule ride considering the seasonality of the operation. The North Rim is only open from May 15 through October 15 which is why this flexibility is being considered for the North Rim operation and not for the South Rim.

Rides will be allowed up to 48 rides per day and up to 30 rides in the morning and 30 rides in the afternoon; however, total weekly numbers will be capped at 280 which is an average of 40 per day. The ride will be monitored to determine whether it is meeting the objectives of the EA, particularly in addressing the user conflicts and trail conditions.

Comment: Cap the number of rides annually to limit trail damage, but allow flexibility daily.

Response: The NPS agrees that the trail damage is limited based on an annual cap of rides each year. However, certain trail conditions are more susceptible to damage by stock use, such as during the rainy season and when the snow melts, and these times could be in high demand for mule rides. These factors need to be considered when looking at flexible ride schedules. In addition, allowing large numbers of mule rides does not meet the objectives of the EA to address user conflicts, crowding, and mule waste on the trails.

Comment: Closely monitor the yearly use for another 3-5 year trial period before such drastic daily number limitations are placed on the North Rim mule operation.

Response: The implementation of the no action alternative does not address the objectives outlined in the EA. Trails, visitor conflicts, and resource conditions related to commercial mule operations will be monitored annually and some changes could be considered based on information gathered throughout the year.

Comment: Daily limits, both for the above-rim rides and the North Kaibab Trail, are difficult to understand, especially given the possibility that they were set in a somewhat arbitrary way.

Response: NPS disagrees that the daily limits were set in an arbitrary way. The NPS reviewed comments received during internal and public scoping to determine issues and concerns associated with mule operations and stock use in the park. An interdisciplinary approach was used to define project objectives and draft alternatives to address objectives. The numbers of rides proposed in Alternatives B, C, D and E were developed using historical stock use data on both North and South Rim, guidance from the park's General Management Plan, infrastructure capacity (e.g. length of hitch rails, amount of space at Supai Tunnel), trail conditions, resource impacts, and visitor experience for all user types including the number of mules and mule strings that would be on a trail at one time.

Location of Rides

Comment: Why stop the commercial day ride to Plateau Point and continue the ride to Phantom Ranch?

Response: The Phantom Ranch ride provides transportation to the bottom of the canyon, the shorter above rim ride will be available for visitors with time or monetary constraints. Shorter day rides into the canyon are offered from the North Rim for visitors seeking this opportunity. Although the Plateau Point ride is not part of the Preferred Alternative, this alternative does provide a variety of ride opportunities.

Comment: If the visitor demand for the above-the-rim mule ride increases, the number of riders, duration of the ride, and frequency of the ride should be re-evaluated to determine if additional rides would be appropriate.

Response: The NPS will monitor this ride including the impact, visitor satisfaction, and demand for this activity. Additional rides could be considered in the future based on monitoring data and completion of any additional NEPA documentation.

Comment: Is there a need or is it spatially possible for a 6 hour ride above the rim?

Response: Spatially, this would be possible, although unless on existing roadways, a new trail of this length would need to be developed. This has not been identified as a need at this time.

Comment: We would like to see the above rim ride moved to Shoshone Point.

Response: The NPS would like to avoid conflicts with events and visitors to Shoshone Point which is why the ride is proposed from Yaki Point to the east and will return before having any impacts on visitors at Shoshone Point.

User Conflicts

Comment: Please consider opening the old trail route from the north rim as an alternate trail so that hiker and mule traffic can be separated as needed.

Response: The Old Bright Angel Trail from the North Rim is considered a route and is not currently maintained; however it remains open to hikers. Reconstructing this route into a trail for hikers and/or stock would require a tremendous amount of work and funding. In addition, a trailhead and parking area would need to be developed which is not currently under consideration. The park may reconsider the use of the Old Bright Angel Trail in the upcoming Backcountry Management Plan.

Comment: If there is conflict between hikers and equestrians, could there be consideration of alternating days for such uses?

Response: The NPS is not currently considering alternating hiking and stock use based on the high demand for hiking and stock use on all three of the main corridor trails.

Safety

Comment: The impact on visitor safety would seem to be a minimum consideration in any management decision to reduce the use of mules and stock in the Grand Canyon. Are visitors less or more safe having to hike down into the Canyon as opposed to riding a mule or horse?

Response: The safety of hiking will be considered in the upcoming Backcountry Management Plan.

Comment: Regarding safety concerns and packing on the Bright Angel Trail, can the concessioner could go down the Bright Angel and then use the Tonto Trail to access the South Kaibab Trail and Phantom Ranch? Safety issues arise when passing people on the River Trail. There are 5 pack mules, each 5 to 5 1/2 feet wide, and there is no place to pass people.

Response: As an operational concern of the current mule concessioner, this is outside the scope of the EA. NPS is working directly with Xanterra to address these safety concerns on the River Trail through additional signage and hiker education. Further, packing on the Bright Angel is a temporary operation until the South Kaibab rehabilitation is complete.

Comment: Every day the trails are checked six times at no charge to the NPS. Wranglers assist hikers in need of medical attention.

Response: The main corridor trails are heavily trafficked, NPS staff hike these trails frequently, and under the Preferred Alternative some wranglers will still be on these trails and able to contact park staff with emergency situations.